



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

PRELIMINARY ISSUE

9-89

D5610-1

Job Sheet 181615

Accounting Job RD17-1048-01



Part No: D5610-1

Job Qty: 1 ea

Part Name: Aft Crosstube



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 8/2/18

Job Tracking No:

Due Date: 8/10/18

Created By: Marie Lajeunesse

Type: R+D

Description:

Note: D5610 REV:A13 IPP REV:A NEW ISSUE 18/07/31 JFS VERIFIED BY:DP

Ship Via:

POSITIVE RECALL

EFFECTIVE 02 2018

RELEASED 9 9-89 DATE 15-10-04

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
110	Purchasing	1 pcs	8/10/18	8/10/18	0.00	0.00	Purchasing		SEP 18 2018
120	Packaging	1 pcs	8/10/18	8/10/18	0.00	0.00	Packaging2		SEP 18 2018
130	QC	1 pcs	8/10/18	8/10/18	0.00	0.00	QC6		61 38 9-89
160	Packaging	1 pcs	8/10/18	8/10/18	0.00	0.00	Packaging3-2		9-89
170	QC21-SA	1 Ea	8/10/18	8/10/18	0.00	0.00	QC21		9-89

Part Op 110 - Issue P/O to Parker Fab: 40676 Manufacture D5610-1 as per dwg. (Sheet1) ***AS PER DWG NOTE 8, Descriptions: EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS.***

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D5610-1TRN	EC130 Aft Crosstube Turning Detail	1 Ea (1 ea)	110-Purchasing	<u>5098233</u>
D5610-1P	Aft Crosstube	1 (1 ea)	120-Packaging	<u>511176</u>

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
110-Purchasing	D5610-1TRN	1	5	0
120-Packaging	D5610-1P	1	0	0

Part Specifications

Specifications could not be found.



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CANADA
TEL: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

Plex 8/2/18 7:16 AM Dart.lajeunesse.marie

Container No: **S111188**



Part: D5610-1

Job No: 181615

Serial No/Batch: **S111188**

Revision: A13

Inspector:

Exp Date:

Instructions:

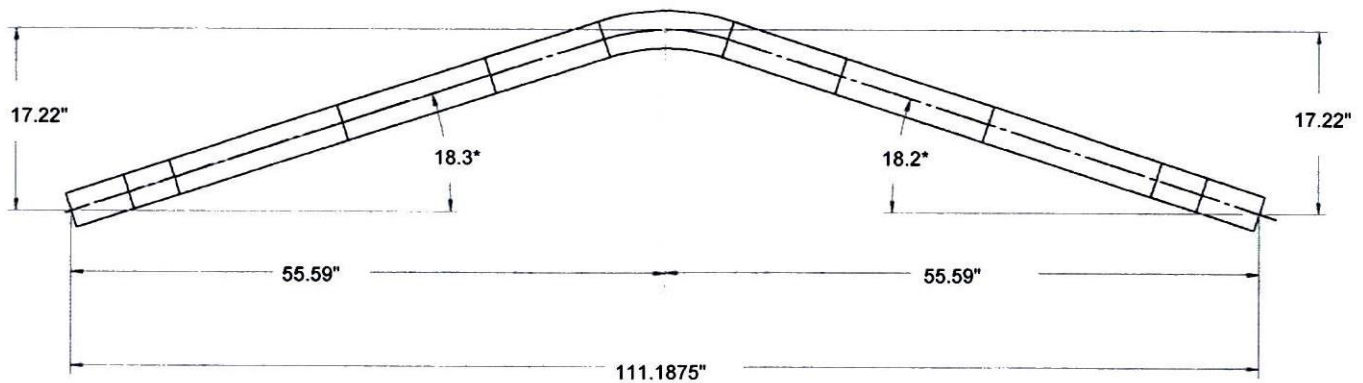
Date: 09/18/18

DART AEROSPACE LTD		Work Order:	181615
		Serial Number	S111188
Description: EC 130 AFT Cross Tube		Part Number:	D5610-1
Inspection Dwg: D5610		Rev: PA10	Page 1 of 1

Parker Fab - PO 040676 Tube #1

INSPECTION SHEET

Required Dimension	Min	Max
Height	16.81"	17.31"
1/2 Span	55.35"	55.61"
Angle	17.5	18.5
Total Span	110.70"	111.20"



WALL THICKNESS MEASUREMENTS				
LOCATION FROM CL	R1	R2	R3	R4
CL				
5.88" From Center of Tube (Side A)				
5.88" From Center of Tube (Side B)				

OUTSIDE DIAMETER MEASUREMENTS		
LOCATION	M1	M2
CL		
5.88" From Center of Tube (Side A)		
5.88" From Center of Tube (Side B)		

Crushing

MAX 0.5%	$(D2 - D1) / (D2 + D1)$
5.88" From Center of Tube (Side A)	
5.88" From Center of Tube (Side B)	

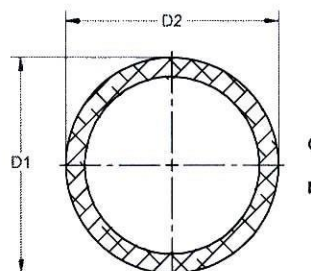
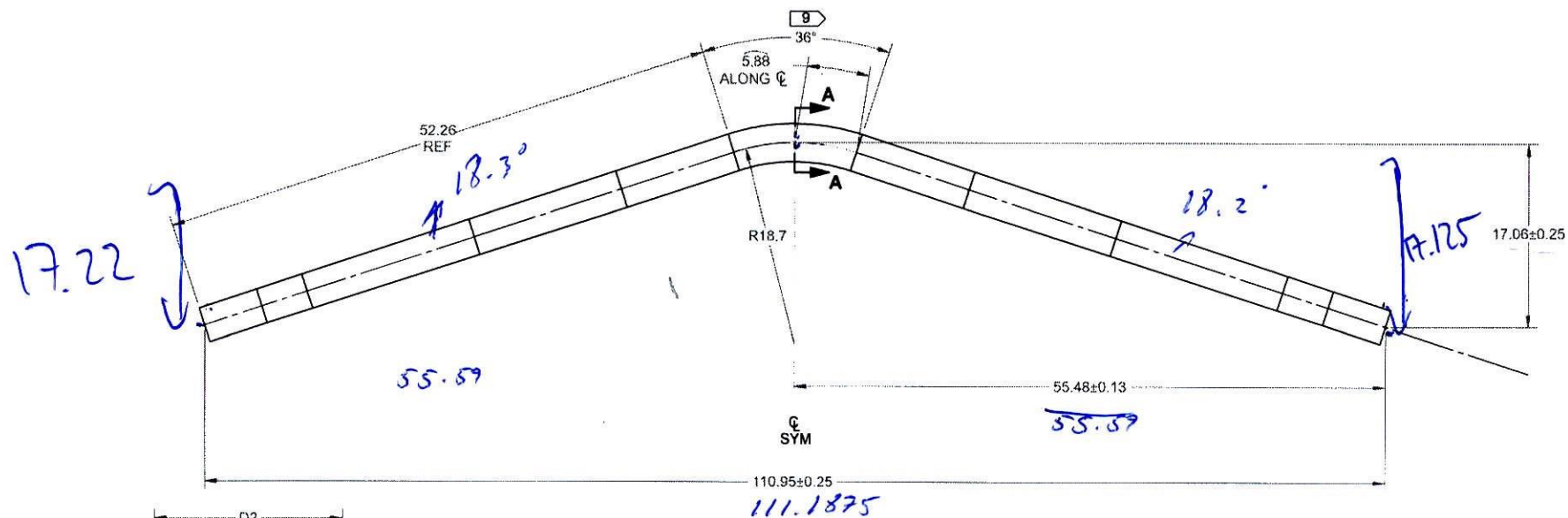
TWIST

	SIDE A	SIDE B
MAX 0.25"		

Measured by:		Checked by:		QC Inspector:	
Date:		Date:		Date:	

Engineering Approval: (If necessary)		Date:	
--	--	--------------	--

Rev	Date	Change	Revised by	Approved
A	18/09/21	New Issue	ED	



SECTION A-A
SCALE 5X
BEND CRUSHING MEASUREMENT

$$\text{CRUSHING} = \frac{(D2 - D1)}{(D2 + D1)}$$

MAXIMUM CRUSHING = 0.005

D5610-1 EC130 AFT X-TUBE

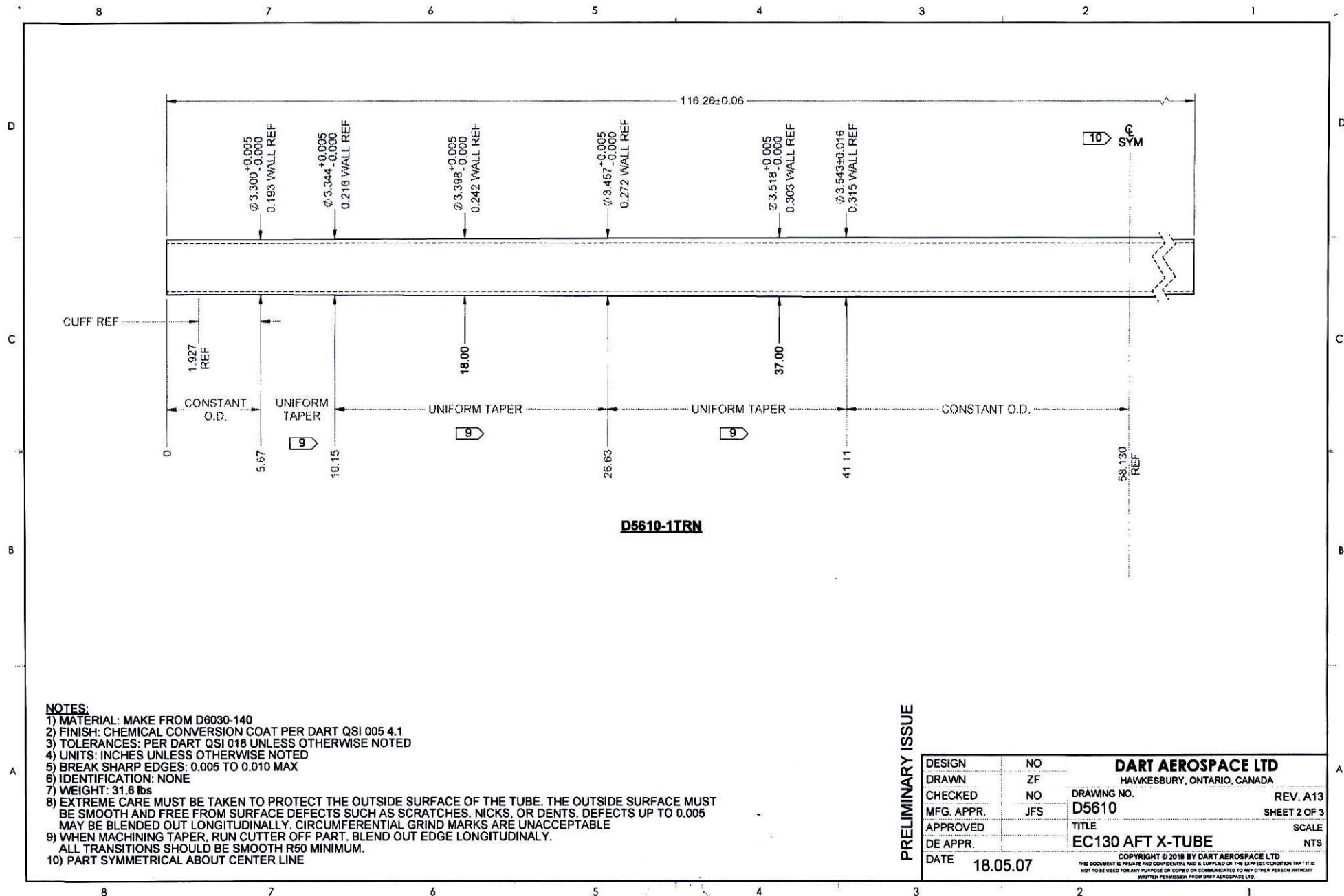
NOTES:

- 1) MATERIAL: MAKE FROM D5610-1TRN
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 31.6 lbs
- 8) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, WRINKLES, OR DENTS. DEFECTS UP TO 0.005 MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE
- 9) MAX AMPLITUDE OF RIPPING ALONG BENT PORTION OF THE TUBE IS 0.030

PRELIMINARY ISSUE

DESIGN	NO	DART AEROSPACE LTD	
DRAWN	ZF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	NO	DRAWING NO.	REV. A13
MFG. APPR.	JFS	D5610	SHEET 1 OF 3
APPROVED		TITLE	SCALE
DE APPR.		EC130 AFT X-TUBE	NTS
DATE	18.05.07	COPYRIGHT © 2018 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

SHOP COPY
 RETURN TO
 ENGINEERING
 UNCONTROLLED COPY
 SUBJECT TO AMENDMENT
 WITHOUT NOTICE
 WORK ORDER
 NO. 181615 MJS
180802

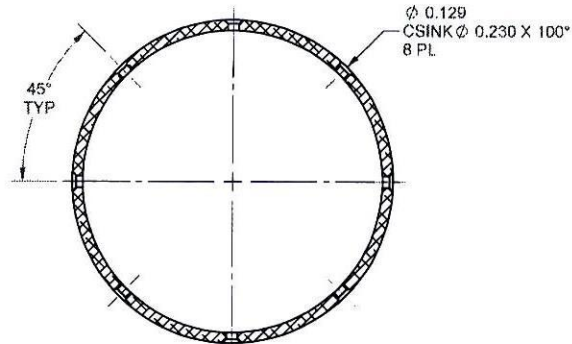


NOTES:

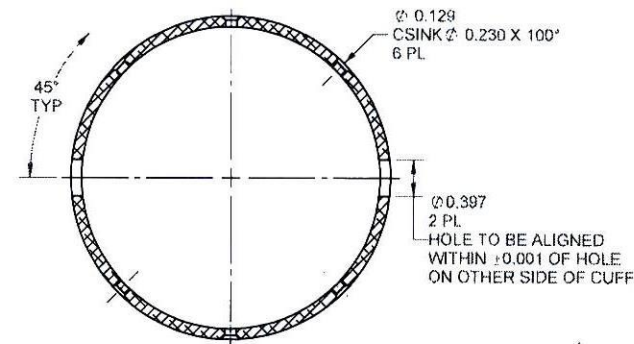
- 1) MATERIAL: MAKE FROM D6030-140
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 31.6 lbs
- 8) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005 MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE
- 9) WHEN MACHINING TAPER, RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY.
- 10) PART SYMMETRICAL ABOUT CENTER LINE

PRELIMINARY ISSUE

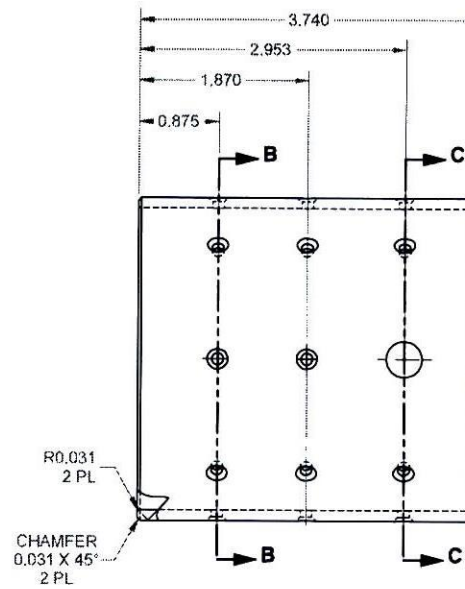
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DRAWN	ZF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	NO	DRAWING NO.	REV. A13
MFG. APPR.	JFS	D5610	SHEET 2 OF 3
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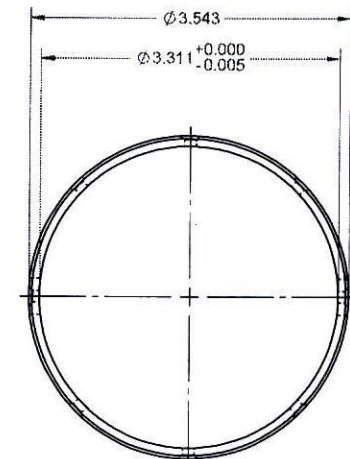
SECTION B-B



SECTION C-C



D5610-3 CUFF



- NOTES:**
- 1) MATERIAL: MAKE FROM D6030-140
 - 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
 - 6) IDENTIFICATION: NONE
 - 7) WEIGHT: 0.46 lbs

PRELIMINARY ISSUE

DESIGN	NO	DART AEROSPACE LTD	
DRAWN	ZF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	NO	DRAWING NO.	REV. A13
MFG. APPR.	JFS	D5610	SHEET 3 OF 3
APPROVED		TITLE	SCALE
DE APPR.		EC130 AFT X-TUBE	NTS
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Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO040676**

Supplier: PAR005-VU
Parker Fabrication Inc
501 East Courtland
Morton, IL 61550-9043 USA
Phone: 309-266-8413
Fax: 309-266-7231

PO No: PO040676

PO Date: 8/2/18

Due Date: 8/31/18

**Purchase Order
Revision:**

Revision Date:

Ship-To Contact: Hemmerich, Steven
Phone: 613-632-5200 Ext: 281
shemmerich@dartaero.com

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Pymt Terms: Net 30

Freight Terms:

Special Comments:

Items													
Line Item	Job	Part	Supplier Part No	Item No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1	181615	D5610-1P			Aft Crosstube	Firmed	71900-200-0000	8/31/18	1 Ea	0 Ea	1 Ea	\$723.26/Ea	\$723.26
2	181616	D5610-1P			Aft Crosstube	Firmed	71900-200-0000	8/31/18	1 Ea	0 Ea	1 Ea	\$723.26/Ea	\$723.26
3	181614	D5610-1P			Aft Crosstube	Firmed	71900-200-0000	8/31/18	1 Ea	0 Ea	1 Ea	\$723.26/Ea	\$723.26
4	181613	D5610-1P			Aft Crosstube	Firmed	71900-200-0000	8/31/18	1 Ea	0 Ea	1 Ea	\$723.26/Ea	\$723.26
5	181612	D5610-1P			Aft Crosstube	Firmed	71900-200-0000	8/31/18	1 Ea	0 Ea	1 Ea	\$0.01/Ea	\$0.01
					This tube for test purposes only. It is damaged and to be returned.								
												Grand Total:	\$2,893.05

Order Notes

Procurement Quality Clauses

A005 right of entry
A012 chemical and physical test report
A016 personnel qualification
A017 raw material identification (as applicable)

A022 Apical Processing
A024 process certifications
A026 certification of material conformance

A041 quality management system
A042 dart notification by supplier
A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness



Parker Fabrication, Inc.
501 East Courtland
Morton, IL 61550-9043

Ph: 309.266.8413
Fax: 309.266.7231

Pack List

Number: **119664**

Date: 17-Sep-18

Ship To

Dart Aerospace
1270 Aberdeen St
Hawkesbury, ON K6A 1K7
Canada

Steven Hemmerich
Dart Aerospace
1270 Aberdeen St
Hawkesbury, ON K6A 1K7
Canada

Ph: 1 613 632-5200

Ph: 1 613 632-5200

Ship Via

Freight Collect

Quantity

Description

✓ 4
ea

Part: EC130AFT1 ✓
EC130 Aft X Tube A8 1 bend
Job: 207296

PO: PO040676 ✓

Rev:

Line:

DAS
61
9-89

Thank you for your business!



Certificate of Conformance (CoC)

Form F-4003
Page 1 of 1
Last Revised:
3/09/2018

Supplier Name: Parker Fabrication
Supplier Number: _____
Part Description: EC130 AFT X-Tube

Part Number: D5610
Drawing Number: D5610

Revision: A8

DAS
61
9-89

Purchase Order #: PO040676
Quantity: 4
Serial Number(s): 207296
Lot/Heat Number: _____

(if applicable)

(if applicable)

All technical requirements of the contract are satisfied. Quality and performance are in accordance with the contract, the specifications, and all references and associated contractual drawings and documents.

I, as a supplier to Dart Aerospace LTD, acknowledge and certify the material covered under this document is produced in accordance with the following:

- ☒ All Contractual "Flow Down" Requirements
- ☒ Supplier Standards Guide
- ☒ Global Supplier Quality Manual
- ☒ Product Conformance
- ☒ Free of Counterfeit Material

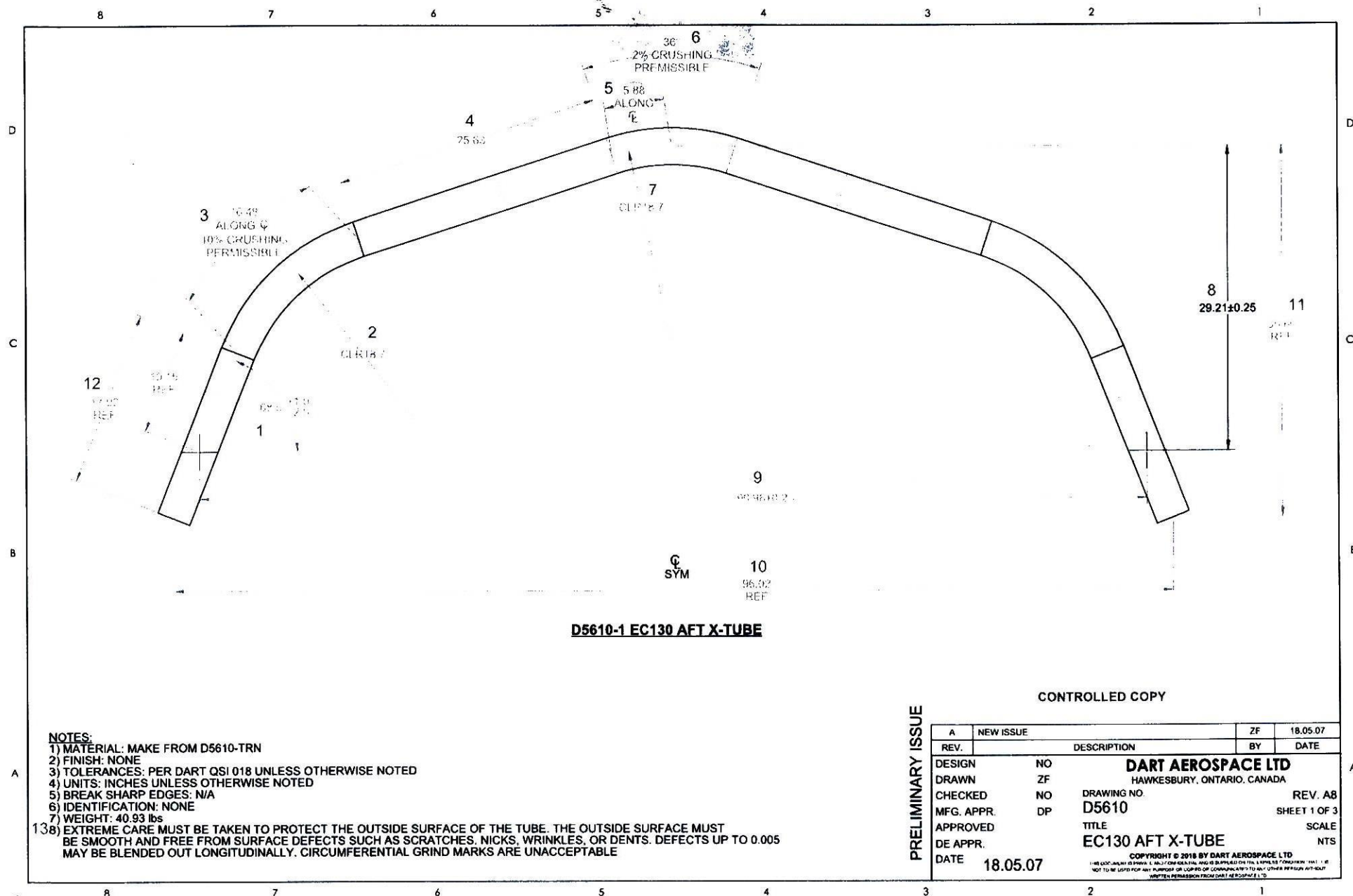
(Acknowledge by marking the boxes)


Signature

Quality Manager
Title

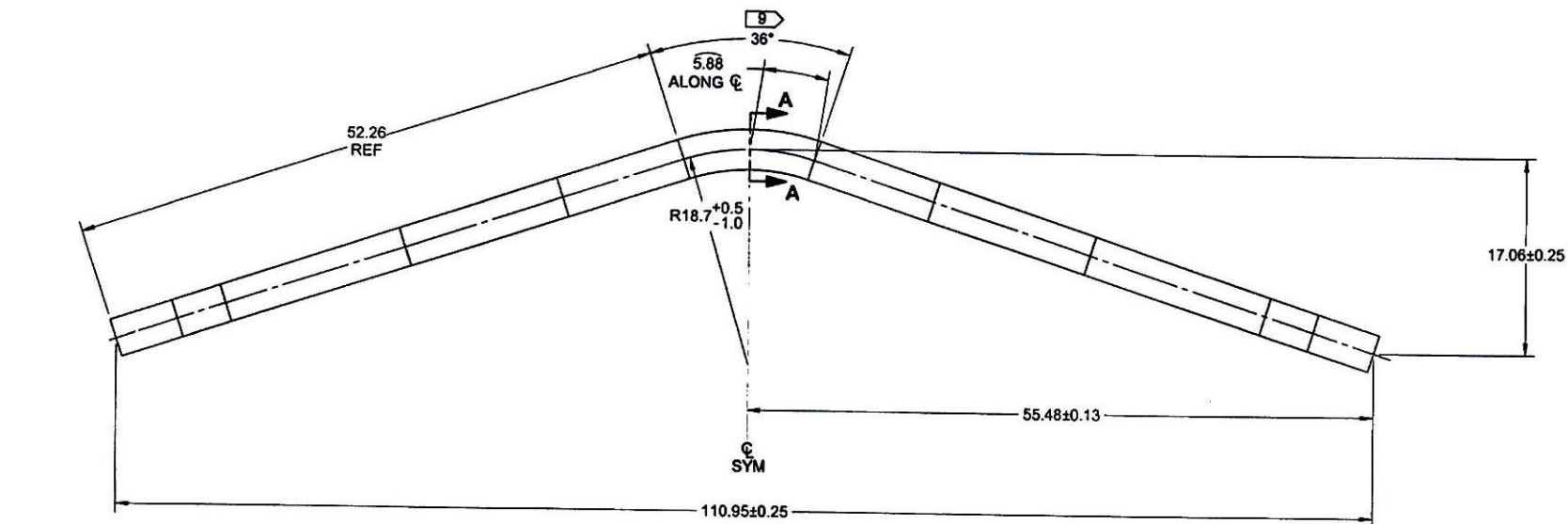
9/17/2018
Completion Date

This certifies the parts/items/materials identified above conform to all applicable drawings and/or specifications as evidenced by reports or other documentation on file and all other purchase order and quality requirements have been met.

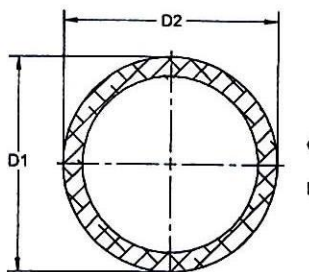


Production Part Approval Dimensional Test Results

[illegible]



D5610-1 AFT X-TUBE (EC130)



$$\text{CRUSHING} = \frac{(D2 - D1)}{(D2 + D1)}$$

MAXIMUM CRUSHING = 0.005

SECTION A-A
SCALE 5X
BEND CRUSHING MEASUREMENT

NOTES:

- 1) MATERIAL: MAKE FROM D5610-1TRN
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 31.6 lbs
- 8) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, WRINKLES, OR DENTS. DEFECTS UP TO 0.005 MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE
- 9) MAX AMPLITUDE OF RIPPING ALONG BENT PORTION OF THE TUBE IS 0.030

RELEASED

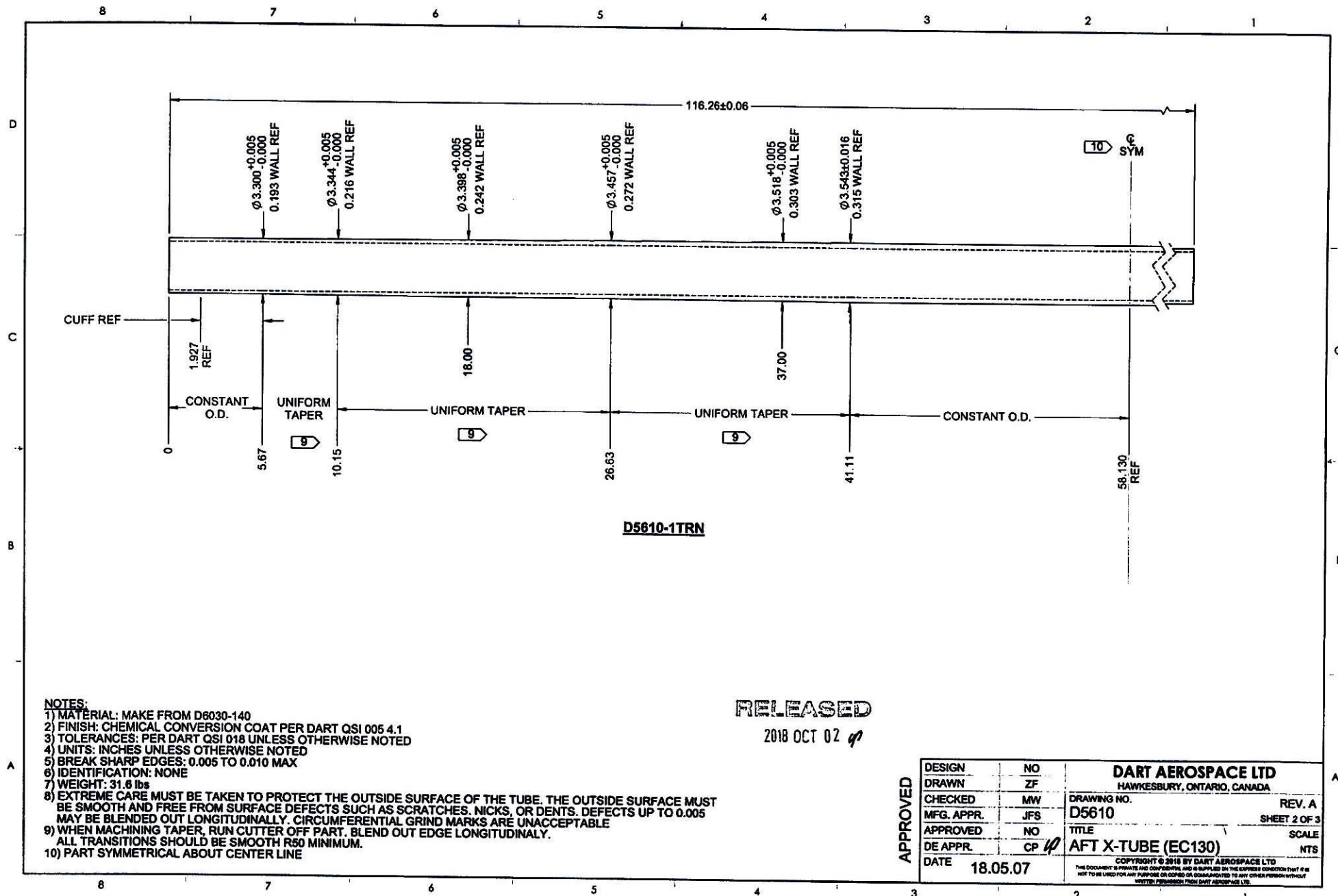
2018 OCT 02
ECN 18-017

APPROVED

A NEW ISSUE		ZF	18.05.07
REV.	DESCRIPTION	BY	DATE
DESIGN	NO		
DRAWN	ZF		
CHECKED	MW		
MFG. APPR.	JFS		
APPROVED	NO		
DE APPR.	CP		
DATE	18.05.07		

DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA		REV. A
DRAWING NO. D5610		SHEET 1 OF 3
TITLE AFT X-TUBE (EC130)		SCALE NTS

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NOTES:

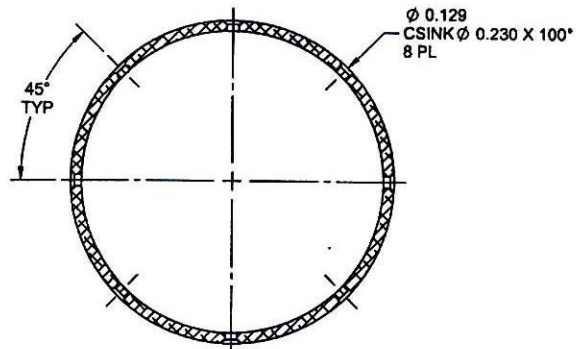
- 1) MATERIAL: MAKE FROM D6030-140
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 31.8 lbs
- 8) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005 MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE
- 9) WHEN MACHINING TAPER, RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY.
- 10) PART TRANSITIONS SHOULD BE SMOOTH R50 MINIMUM.
- 10) PART SYMMETRICAL ABOUT CENTER LINE

RELEASED

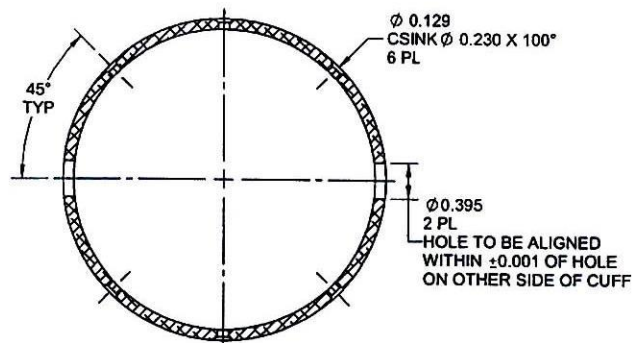
2018 OCT 02

APPROVED

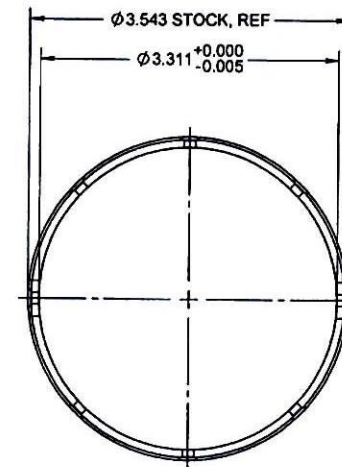
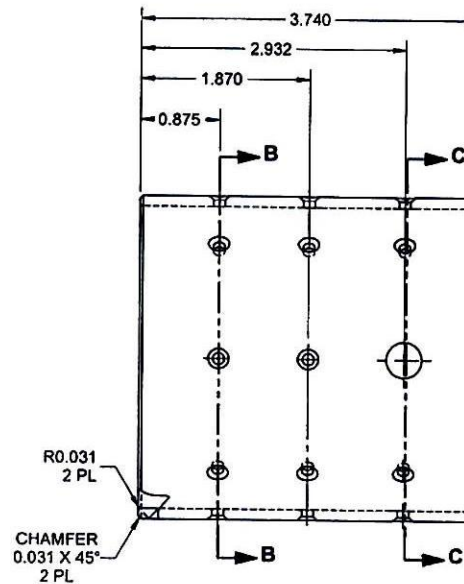
DESIGN	NO	DART AEROSPACE LTD	
DRAWN	ZF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	MW	DRAWING NO.	REV. A
MFG. APPR.	JFS	D5610	SHEET 2 OF 3
APPROVED	NO	TITLE	SCALE
DE APPR.	CP	AFT X-TUBE (EC130)	NTS
DATE	18.05.07	COPYRIGHT © 2018 BY DART AEROSPACE LTD	
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SECTION B-B



SECTION C-C



D5610-3 CUFF

NOTES:

- 1) MATERIAL: MAKE FROM D6030-140
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.46 lbs

RELEASED

2018 OCT 02

APPROVED

DESIGN	NO	DART AEROSPACE LTD	
DRAWN	ZF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	MW	DRAWING NO.	REV. A
MFG. APPR.	JFS	D5610	SHEET 3 OF 3
APPROVED	NO	TITLE	SCALE
DE APPR.	CP	AFT X-TUBE (EC130)	NTS
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